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AUTHOR Landry, Rodriguez; Allard, Real
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ABSTRACT

The position taken in this paper is that the basic debate concerning the effectiveness of bilingual education has been totally "socially naive." A study investigated the concept that the ethnolinguistic vitality of a community determines the quality and quantity of linguistic contacts with one's own linguistic group and with other ethnolinguistic groups, which in turn strongly influence linguistic proficiency, ethnolinguistic identity, and desire to integrate first-language (L1) and second-language (L2) communities. A model to that effect is proposed and applied to about 1,500 grade 12 anglophone and francophone students in seven Canadian provinces. Effects of the degree of L1 schooling and those of the strength of the L1 network of linguistic contacts in the social milieu were analyzed. It was found that the latter were stronger than the former for these variables: desire to integrate L1 and L2 communities, ethnolinguistic identity in L1 and L2, L1 and L2 self-rated oral proficiency, and L2 cognitive-academic proficiency. L1 schooling had the strongest effect on cognitive-academic proficiency. Results support the hypothesis that additive bilingualism is best promoted by immersion in L2 for high-vitality groups and by L1 schooling for low-vitality groups. It is concluded that the effects of bilingual education cannot be understood without taking account of the strong influences of the students' sociolinguistic environment. (MSE)

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Beyond Socially Naive Bilingual Education: The Effects of Schooling and Ethnolinguistic Vitality on Additive and Subtractive Bilingualism

Rodriguez Landry
and
Real Allard

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BEYOND SOCIALLY NAIVE BILINGUAL EDUCATION: THE EFFECTS OF SCHOOLING AND ETHNOLINGUISTIC VITALITY ON ADDITIVE AND SUBTRACTIVE BILINGUALISM [1]

Rodríguez Landry
and
Réal Allard

Abstract

The position taken in this paper is that the basic debate concerning the effectiveness of bilingual education has been "socially naive." Different approaches to bilingual education have been contrasted with almost exclusive regard for educational or pedagogical issues. In so doing, the effects of the sociolinguistic environment experienced by the students have been neglected. The paper presents a macroscopic model of the determinants of additive and subtractive bilingualism. The model proposes that the ethnolinguistic vitality of a community determines the quantity and the quality of linguistic contacts with one's group and with other ethnolinguistic groups. These contacts, in turn, strongly influence linguistic proficiency, ethnolinguistic identity and the desire to integrate the L1 and L2 communities. These psychological variables then become strong determinants of language behavior. The role of schooling and of other types of linguistic contacts are specified within the model.

Results of a study involving approximately 1500 grade 12 anglophone and francophone students in seven Canadian provinces were analyzed for the effects of the degree of L1 schooling and those of the strength of the L1 network of linguistic contacts in the social milieu. The effects of the L1 network of linguistic contacts were stronger than those of L1 schooling for the following variables: desire to integrate the L1 and L2 communities, ethnolinguistic identity in L1 and L2, L1 and L2 self-rated oral proficiencies and L2 cognitive academic proficiency. Schooling in L1 had the strongest effect on L1 cognitive-academic proficiency. The results support the hypothesis that additive bilingualism is best promoted by immersion in L2 for high vitality groups and by L1 schooling for low vitality groups. It is concluded that the effects of bilingual education cannot be understood without taking account of the strong influences of the students' sociolinguistic environment.

Introduction

This paper is divided into three sections. In the first, a general introduction discusses some of the divisive issues concerning bilingual education that have been addressed recently in the United States. After pointing out the need for a theoretical framework that would account for the effectiveness of different types of bilingual education in different sociolinguistic contexts, a theoretical model of

the determinants of additive and subtractive bilingualism is presented. This model shows that the conditions of additive bilingualism (Lambert, 1975) and in particular the effects of schooling differ depending on the degree of ethnolinguistic vitality of the community. Finally, in the last section of the paper, data collected across seven Canadian provinces is presented as empirical evidence for the model.

Review of the Literature

There has been much debate lately in the United States on the best ways to educate "limited English proficiency" (LEP) children (e.g. Baker & deKanter, 1983; Cummins, 1986; Hakuta, 1986; Paulston, 1988; Ruiz, 1988; Spener, 1988; Willig, 1985). Much of the debate is centered on whether bilingual education should promote a better transition of LEP students to an all English program or whether bilingual education should foster maintenance of the first language. Even when the objective is limited to effective transition to an all-English program, there is still debate as to whether the language of instruction should be English or the child's primary language (e.g. Ramirez, 1991).

It is not the object of this paper to review the many bilingual projects that have been implemented and evaluated in the United States. Reviewers themselves do not agree in their assessment of the quality of the research done, the general findings and their implications for bilingual education (e.g. Baker, 1987; Secada, 1987; Willig, 1985, 1987). We will also not try to untangle the difficult issues underlying bilingual education per se, i.e. the degree to which a society should promote cultural diversity and pluralism or adopt a more assimilationist position. Edwards (1989) is certainly right in pointing out that, for many people, the more or less hidden agenda of bilingual education is the promotion of social change. In the words of Edwards:

> ... bilingual education is seen as a reflection of a generalized support for diversity, helping to strengthen minority languages in the United States (particularly Spanish) and to weaken the position of English. Against this is the support for bilingual education which sees it as a force for an enduring ethnolinguistic diversity which means richness and strength for all without an erosion of English, and as a pillar of ethnic group identities seen to be at risk of assimilation. (p. 4)

We agree with Taylor (1991) who states that "whenever the issue of cultural identity is raised in the scientific literature, the normal rules of conceptual clarity and operational definition become inoperative" (p. 14). Cultural diversity and ethnic identity relate to fundamental values and to basic traits of the human condition. Researchers cannot easily avoid taking position on these issues and certainly much camouflage may be used in masking one's true position when one's stance is not consonant with the more widely accepted ideology. When the link between bilingual education and social change is made, issues of unequal rights among minority and majority groups are raised. Whenever this occurs, educational policies of school boards and governments cannot be dissociated from

the more general issue of power relations. In turn, power relations bring about the problems of racism, ethnicism and linguicism: "ideologies, structures and practices which are used to legitimate, effectuate and reproduce an unequal division of power and resources (both material and non-material) between groups defined on the basis of race / ethnicity / language" (Skutnabb-Kangas, 1990, p. 85).

As researchers, we are involved simultaneously with two research paradigms: the explanatory paradigm and the interventionist paradigm (Giles, Leets and Coupland, 1990). Although devoted to the objective analysis of the conditions that lead to language maintenance and loss, as educators and social agents we are also concerned with the conditions of change and the prescriptive interventions that can enhance the chances of survival of low vitality groups. Our position is one of promoting the maintenance of minority language without undermining integration into the larger society (see Berry, 1984). Bilingual education is one of the prescriptive interventions that may be used to enhance ethnolinguistic persistence and cultural diversity when, as mentioned above, this type of social change is consonant with society's ideology and underlying goals.

The position taken in this paper is that the basic debate concerning the effectiveness of bilingual education has been "socially naive". By this, we mean that different approaches to bilingual education have been contrasted almost exclusively in regard to educational or pedagogical variables without controlling for or taking into account the sociolinguistic environment that the students experience (see also Paulston, 1988). Language acquisition and bilingual development depend not only on the type of educational program taken but also on all other types of linguistic contacts. In other words, what is an effective bilingual education program in one social context may be completely ineffective in other contexts. What is needed is a theoretical framework that will permit effective adaptations of different educational programs to different sociolinguistic contexts.

Andersson and Boyer (1970) have defined bilingual education as "instruction in two languages and the use of those two languages as mediums of instruction for any part of or all of the school curriculum" (cited in Edwards, 1989, p. 12). This broad definition permits many variations on a continuum from being schooled completely in a second language to completely in the child's mother tongue. We will argue in this paper that if immersion in a second language is the most effective bilingual program in certain social contexts, the best bilingual education program for children in very low vitality contexts may well be teaching exclusively in the mother tongue except for second language courses. We are assuming, however, that for this to be the case, *the goal of bilingual education has to be the same for all children i.e. the development of additive bilingualism* (as defined in the following section). On ethical grounds, it does not seem justified that, within the same society, some children be allowed bilingual programs that foster the acquisition of a second language while their first language is amply protected by society, whereas other children are being "mainstreamed" or "submersed" into a second language while their first language is left unprotected. In the latter case, both the child and society may be deprived of a rich cultural heritage. One may object to this position by arguing for "as little government intervention as possible in matters of ethnic identity" (Edwards, 1989, p. 22). In other words, no treatment is fair treatment for all.

Moreover, Edwards (1989) argues that "The general sentiment in America, however, indicates an overall willingness to assimilate, in particular to acquiesce in communicative language shift" and also that "matters of ethnicity are best left to those directly concerned" (p. 18). Edwards also takes the position that given the overpowering dominance of English, it is doubtful whether language maintenance bilingual programs could be effective. But does government non-intervention really do justice to all, especially in a country that prides itself of its democratic roots and traditions? Does equal treatment under unequal conditions provide for egalitarian outcomes?

In the following section we describe a macroscopic model of the determinants of additive and subtractive bilingualism which accounts for the role of schooling in promoting language maintenance in minority contexts and bilingual development in majority contexts. In the final part of this paper, empirical data supporting this model is presented.

Additive and Subtractive Bilingualism: A Macroscopic Model

Additive and subtractive bilingualism are terms coined by Lambert (1975) that were proposed to account for the conditions that lead to either positive or negative consequences when learning a second language. Lambert was attempting to account for contradictory research results concerning the affective and cognitive consequences of bilingualism. Lambert had noticed that in certain contexts, very often those experienced by minority groups, the conditions of bilingualism were subtractive, i.e. second language acquisition led to subsequent losses in one's first language and culture. In other contexts, especially when the first language had high status in the community, the conditions of bilingualism were mostly additive, i.e. a second language could be learned and cultural elements related to this language acquired with no apparent loss in first language or culture. Anglophone children in Canada (Cummins & Swain, 1986; Genesee, 1983, 1987, 1991; Lambert & Tucker, 1972; Swain & Lapkin, 1982, 1991) and in the United States (Genesee, 1985) immersed in educational programs taught via French and Spanish, respectively, seem to develop an additive type of bilingualism. Minority group children in these two countries (Cummins, 1984, 1986; Ruiz, 1988; Landry, 1982; Landry, Allard & Théberge, 1991) and in others (Hamers & Blanc, 1983, 1989; Skutnabb-Kangas, 1983; Skutnabb-Kangas & Cummins, 1988) often develop a subtractive type of bilingualism, especially when these children receive no schooling via their first language.

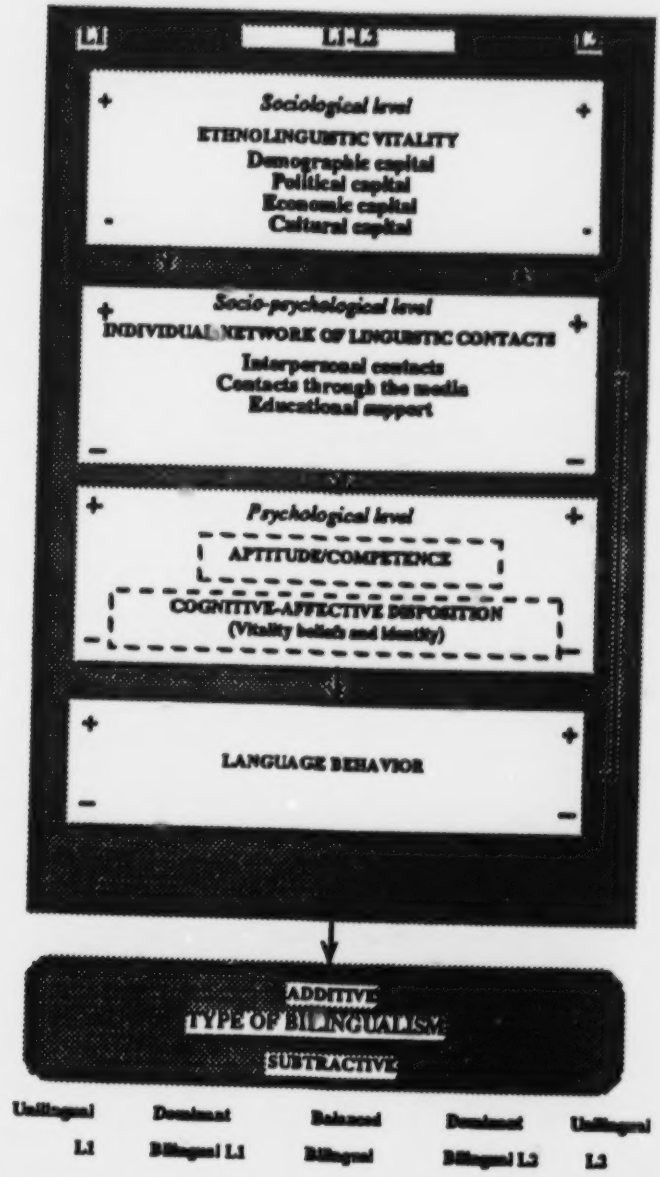
The distinction between these two types of bilingualism was important because it helped to focus attention not only on bilingualism as an individual psychological phenomenon but also on the social conditions of bilingualism (Reynolds, 1991a). Much of the emphasis, however, in the use of this terminology has been limited to the conditions of bilingualism that lead to either negative or positive cognitive consequences (e.g. Cummins, 1978, 1979, 1981; Hamers & Blanc, 1983). Although recent research tends to attribute positive cognitive consequences to bilingualism whereas research prior to 1960 attributed mainly negative consequences, critical analyses of these two research trends have concluded that bilingualism may not be related at all to major differences in cognitive functioning (Baker, 1988; Hakuta, 1986; McLaughlin, 1984; McNab, 1979; Reynolds, 1991b). In order to preserve the strong social relevance and the

full heuristic value of the constructs proposed by Lambert, we submit an enlarged definition of additive and subtractive bilingualism.

We think that the enlarged definition which encompasses linguistic, cognitive, affective and behavioral criteria is more consonant with Lambert's initial intention (Landry, 1982, 1987; Landry & Allard, 1990). It also allows for varying degrees of additive and subtractive bilingualism which may differ on each of these criteria. Accordingly, complete additive bilingualism would encompass: a) a high level of proficiency in both communicative and cognitive-academic aspects of L1 and L2; b) maintenance of a strong ethnolinguistic identity and positive beliefs toward one's own language and culture while holding positive attitudes toward the second language and that group's culture; c) the generalized use of one's first language without diglossia, that is without one's language being used exclusively for less valued social roles or domains of activity. The last criteria provides the link to the social dimension of bilingualism. When the conditions of bilingualism do not foster the use of one's language, the individual ceases to be an active member of one's ethnolinguistic community. Furthermore, additive bilingualism under the other criteria is jeopardized because linguistic experiences in L1 become insufficient to foster strong L1 competencies, beliefs and identity. When many members of a linguistic community cease to use their language, not only does bilingualism become more subtractive for these individuals, but the whole community loses its ethnolinguistic vitality. As will be shown below, sustained use of one's language is necessary to maintain a network of linguistic contacts that will foster linguistic competencies, beliefs and identity.

The macroscopic model of the determinants of additive and subtractive bilingualism proposed (Landry, 1982; Landry & Allard, 1987, 1990, 1991 b) is based on the construct of ethnolinguistic vitality (EV). Giles, Bourhis & Taylor (1977) defined EV as "that which makes a group likely to behave as a distinctive and active collective entity in intergroup situations" (p. 308). Giles et al. identified three categories of sociostructural factors (demography, institutional support and status) that delineate the *objective* vitality of the ethnolinguistic group. In the present model (see Figure 1), EV variables constitute the sociological level which represents the division of power and resources between ethnolinguistic groups. The notion of "capital" is borrowed from Bourdieu (1980) to denote four interrelated but relatively distinct fields from which objective indices of vitality can be extracted: *demographic*, *political*, *economic* and *cultural* (see Prujiner, Deshaies, Hamers, Blanc, Clément & Landry, 1984). Important indices of demographic capital are the number of ethnolinguistic group members, their relative proportion in the total population, their degree of concentration within a territory, their relative birth rate, the degree of endogamy as well as the rates of immigration and emigration. The relative amount of control and the extent of representation, formal and informal, in society's various economic, political and cultural institutions constitute the degree of capital in each of these respective fields. Access to schools or educational programs in an ethnolinguistic group's language is a basic indicator of cultural capital, for example. A minimal level of "institutional completeness" (Breton, 1964) is required for a minority group to survive (see also deVries, 1984, Allardt, 1984). Ethnolinguistic groups which lack capital in all or most of these fields tend to

Figure 1: A macroscopic model of the determinants of additive and subtractive bilingualism



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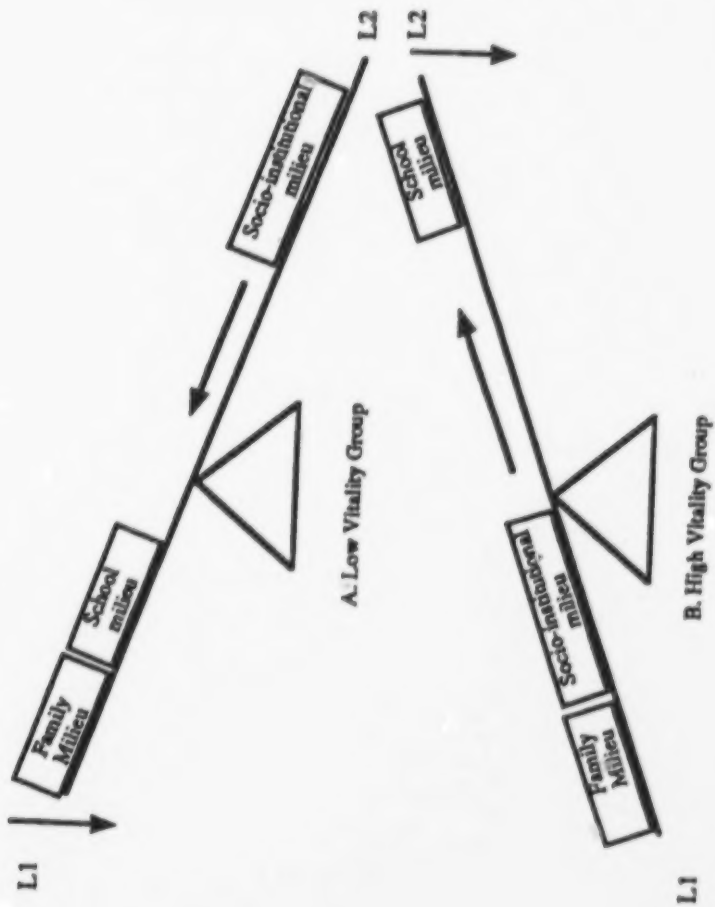
assimilate and eventually cease to exist as a distinct collective entity. For example, German immigrants once composed strong and active communities in the American Midwest but, through lack of "institutional completeness", they have lost much of their visibility as a collective entity (Grosjean, 1982; Hakuta, 1986). Lack of capital in one or more fields, however, can be compensated by power and resources in other fields (Prujiner, 1987; Prujiner et al., 1984).

In the model shown in figure 1, EV sociostructural factors at the sociological level largely determine the extent of ethnolinguistic contacts with both the ingroup and the outgroup at the socio-psychological level. All experiences which involve ethnolinguistic contacts are grouped under the rubric *individual network of linguistic contacts* (INLC). The INLC sub-networks of L1 and L2 contacts, for instance, are strongly related to the amount of EV of each group. A low demographic capital will limit ethnolinguistic contact with members of the ingroup outside the family milieu. Low cultural capital (for example, lack of schools, media, church and other cultural institutions) will foster contacts mainly in L2 and with the dominant group's culture. Ultimately, these contacts may be so pervasive as to invade the family milieu (for example, consider the impact of television and home videos on minority group children in North America). Low economic capital may mean that, when engaging in daily activities such as shopping, going to a bank, or working, group members will not be able to use their own language. Low political capital entails that most government services (health, welfare, social services) will not be provided in the group's language. The relative EV of a group, therefore, determines to a large extent *the quantity and the quality of the opportunities for ethnolinguistic contacts* with each group.

Ethnolinguistic contacts occur in a wide variety of forms and contexts. They allow the individual to be both a transmitter and a receptor of linguistic information and also to receive non-verbal messages that inform on the status and cultural values of groups. These contacts may have strong influences on the cognitive-affective disposition toward one's and the others' language (see below). Linguistic contacts may be oral or written, formal or informal, context-embedded or context-reduced, low or high in cognitive demand (see Cummins, 1981), and interactive or non-interactive. In a preliminary attempt to control for the great variety of dimensions involved in linguistic contacts, our research with high school students has focused on three types of contacts: interpersonal, through the media, and through the process of schooling (e.g. Landry & Allard, 1992).

One other way of analyzing the INLC of school children is to focus on three important "milieux de vie": the family milieu, the school milieu and the socio-institutional milieu (see Figure 2). According to the present model, the lower the EV of a group, the more the family milieu and the school milieu must compensate for an overload of L2 contacts in the socio-institutional milieu in order to provide the child with enough L1 contacts to maintain his or her language and to develop an additive type of bilingualism (Landry et al., 1991). Inversely, the higher the EV of a group, the less opportunities there are in the family and in the socio-institutional milieus to acquire a second language, and the more "immersion experiences" in L2 are needed in the school to develop a high level of additive bilingualism. But the school and the family, although crucial elements in the development of additive bilingualism, cannot fully compensate for lack of vitality in the socio-institutional milieu. Linguistic

Figure 2: The counterbalance model of bilingual development



contacts within the community and within the global social network of the individual can have as much and in some cases greater impact on language development than the school. There is a strong need to adjust bilingual education models to the relative EV of the children's linguistic community.

The relative EV of a community determines the INLC. In turn, the INLC becomes the experiential basis for the development of competencies, beliefs and ethnolinguistic identity at the psychological level (see figure 1). Psychological variables are subsumed under two major categories: the aptitude / competence factor which refers to the *ability to learn and use* the language and the cognitive-affective disposition which refers to one's *willingness to learn and use* the language.

Aptitude is the ability to learn the language and is a result of one's inherent intellectual and linguistic aptitudes (e.g. Carol, 1973; Gardner, 1985). Competence refers to the ability to use the language and is acquired through linguistic contacts within the INLC. Based on Cummins' work (1979, 1981, 1984), the model distinguishes two different aspects of linguistic proficiency: interpersonal communicative skills and cognitive-academic linguistic proficiency. The first is highly dependent on experiencing interpersonal contacts or learning the language from a communicative approach (e.g. Krashen, 1981; Swain, 1985); it is fostered mainly by linguistic contacts that are interactive, relatively low in cognitive demand and context-embedded. It is also less dependent on intellectual aptitude than is cognitive-academic linguistic proficiency (Cummins, 1981, 1984; Genesee, 1976, 1978). The latter's development, more dependent on intellectual aptitude, is largely influenced by literacy activities and cognitively demanding, context-reduced linguistic contacts (see Cummins, 1981, 1984; Resnick, 1987). There is also a large amount of transfer across languages for cognitive-academic linguistic proficiency (Cummins, 1981, 1984). In low vitality contexts, when a child learns L2 from interpersonal contacts and contacts through the media, a large amount of schooling in L2 is not needed to develop a high level of additive bilingualism. Schooling in L1 will develop cognitive-academic proficiency in L1 and, with good L2 courses and the interpersonal communicative skills in L2 learned in the socio-institutional milieu, cognitive-academic skills in L1 will transfer to L2 thus helping to develop the latter skills in L2 (Landry & Allard, 1991 b; Landry et al., 1991 ; Landry & Magord, in press).

The cognitive-affective disposition component encompasses the many motivational constructs that have been proposed in relation to language acquisition (e.g. Gardner, 1985; Gardner & Clément, 1990) and also the many cognitive representations that may be analyzed in intergroup or intragroup contexts, e.g. Giles et al. (1990). This component also encompasses what has been called "subjective ethnolinguistic vitality" (Bourhis, Giles and Rosenthal, 1981) which is the cognitive representation that a group member has of his and other groups' EV. Allard & Landry (1986, 1987, 1991, 1992) have proposed that cognitive representations in general and subjective ethnolinguistic vitality in particular could be analysed in terms of *exo-centric beliefs* (beliefs that pertain to external or normative attributes of vitality) and *ego-centric beliefs* (beliefs concerning one's personal attributes and dispositions relative to the ingroup and the outgroup). The research cited above has shown that beliefs, especially ego-centric ones, were strongly related to frequency of language use. Like language

competency, the cognitive-affective disposition component is highly related to the strength of the INLC (Landry & Allard, 1990).

Exo-centric beliefs are about things which are exterior to the individual, e.g. present group vitality, future group vitality, legitimacy of the group's vitality and perceptions of the language behavior of social models. Since these beliefs involve comparatively few feelings, they are said to be primarily cognitive in nature. Ego-centric beliefs refer to attributes and dispositions of the self and may express facts, goals, attitudes and feelings. They are said to be both cognitive and affective in nature, e.g. valorization of one's group language, feelings of belongingness, efficacy beliefs and goals and wishes.

Ethnolinguistic identity is also viewed in this model as part of the cognitive-affective disposition toward the integration of the ingroup and the outgroup. It is conceived to be the most deep-rooted aspect of this disposition and, like beliefs, it is hypothesized to be influenced by the strength and quality of one's contacts with ethnolinguistic groups, especially in the family and the school milieu (Landry & Allard, 1991 a). Identity is presumed to be an internal representation of oneself which has both cognitive and affective attributes, but it is considered to be primarily affective in nature. Hence, exo-centric and ego-centric beliefs and identity are considered to be part of a cognitive-affective continuum (Landry & Allard, 1991 a) which, depending on the strength and quality of the INLC, may lead to an additive or a subtractive type of bilingualism (see criterion b of definition above).

Language behavior, in the present model (see figure 1), is viewed as the end result of the INLC but the most proximal mediators of language behavior are the beliefs, ethnolinguistic identity and competencies which were acquired via accumulated ethnolinguistic contacts. Contextual cues in the situation of communication (e.g. Bourhis, 1979, 1985) may also directly affect the choice of language. As shown in figure 1, language behavior feeds back to the INLC. It is part of the INLC (each linguistic behavior occuring in a network of linguistic contacts) but it is also the result of past experiences in the INLC (these giving rise to beliefs and competencies).

Also, as shown in Figure 1, the end result of this global process can be different types and degrees of bilingualism. The INLC leads to various degrees of beliefs, ethnolinguistic identity, communicative and cognitive-academic proficiency as well as to varying degrees of use of L1 and L2. This is why the definition of additive and subtractive bilingualism given above encompasses linguistic, cognitive, affective and behavioral criteria.

The term "macroscopic" for the present model was borrowed from DeRosnay (1975). A macroscopic model is a conceptual tool needed for the analysis of a complex phenomenon, or when the parts being analyzed are in systemic relation to a more global whole. The present model is one of the few attempts to integrate the social and the psychological dimensions of bilingualism into a single framework (Blanc & Hamers, 1987). Depending on the purpose and the scope of a study, one can adjust the "zoom" of the macroscope and focus on one particular element of the model in greater detail or analyze the dynamics of the relationships among elements of the model. But the macroscope helps one to remember the roles and relationships of each component.

In the study described in the following section, the relative roles of the community and of the school were analyzed in relation to the development of the

criterion variables defining additive and subtractive bilingualism. The following three hypotheses were tested:

1. Ethnolinguistic vitality (EV) of the community and, more directly, the individual network of linguistic contacts will be related to the desire to integrate the linguistic community, ethnolinguistic identity, oral communicative competence and cognitive-academic linguistic proficiency. An increase in EV will be related to higher scores in L1 and lower scores in L2 and conversely, a decrease in EV will be related to lower scores in L1 and higher scores in L2.

2. A low level of schooling in L1 for low vitality groups will be related to a subtractive type of bilingualism, i.e. a decrease in L1 scores and no significant gain in L2 competency scores when compared to same group children schooled mostly via L1. It is expected that a low level of L1 schooling for low vitality groups may result in a stronger desire to integrate the L2 community and a stronger L2 identity.

3. A low level of schooling in L1 for high vitality groups will be related to an additive type of bilingualism, i.e. an increase in L2 scores and no significant decrease in L1 scores.

Methodology

Population and Procedure

Approximately 1500 grade 12 students in 29 different schools in 7 Canadian provinces were tested.

Anglophone students (approximately 340) were all from cities, towns or villages where the anglophone community had very high ethnolinguistic vitality (i.e. the Moncton, New Brunswick and Edmonton, Alberta areas). Subjects were either in the regular English language program or in partial or total French immersion programs.

Francophone students (approximately 1160) came from cities, towns or villages where the percentage of francophones ranged from less than 1% to more than 99%. They were from the provinces of Quebec, New Brunswick, Nova Scotia, Prince Edward Island, Manitoba, Saskatchewan and Alberta. Access to French language schooling ranged from less than half of the courses taken to all courses taken except English as a second language courses.

Using measures of language behavior and of strength of linguistic contacts (see instruments section), the francophone students were grouped in the following fashion. A mean score of the following three scales was calculated for each subject: proportion of francophones in interpersonal network, contacts with the French media and degree of use of French in daily activities. This mean score is seen as a measure of the strength of the L1 network of francophone students. Subjects having an average score of less than 4 (all scores combined were on a 9-point scale) are defined as having a low L1 network, subjects having scores between 4 and 6 are defined as having a medium L1 network and subjects having scores of 7 or more are described as having a high L1 network.

All francophone subjects were further divided according to the degree of French (L1) schooling they received in their 12 years in school. All subjects having had less than half of their schooling in French (i.e. less than or equal to 4 on a 7-point scale) are considered as having had a low degree of L1 schooling. Subjects having average scores greater than 4 but less than 6 are considered as having had a medium degree of L1 schooling, whereas all subjects who had scores of 6 or above had all of their schooling in French except for English as a second language. The latter constitute the high L1 schooling group.

Since all anglophone students had high and continuous contact with the English language in their network of linguistic experiences, they were grouped only according to their degree of schooling in their mother tongue (L1). Those who had all of their schooling in English except for standard courses in French as a second language constitute the high L1 schooling group. Anglophone students who had more than half of their 12 years of schooling in French constitute the low L1 schooling group and those who had more than half of their schooling in English but who had some participation in total or partial immersion courses constitute the medium L1 schooling group.

Questionnaires were administered in groups to classes of students in the 29 schools that participated in the study. In one part of the study (Landry & Allard, 1987), the administration of a large battery of tests and questionnaires necessitated five 50-minute class periods distributed over two days. In the latter part of the study, certain questionnaires and parts of questionnaires were dropped and testing was done over three 50-minute class periods also distributed over two days.

Instruments

The questionnaires and tests related to the variables analyzed in this report are described below.

1. Oral communicative competence in French. This variable was tested through a self-evaluation questionnaire in which the subjects rated their ability to communicate in a variety of situations ranging in levels of difficulty (e.g. asking a phone number, describing family members, discussing politics, discussing the capital punishment issue). The subjects rated their ability to communicate in standard French and in their vernacular language. Scores reported could range from 1 to 9, the latter referring to "native-like" ability. The self-evaluations of the ability to communicate in standard French are the ones reported in the present analyses.

2. Oral communicative competence in English. This questionnaire involved the same language tasks used to evaluate oral communicative competence in French but the subjects rated their ability to communicate in English.

3. French cognitive-academic linguistic proficiency. A cloze-test of approximately 330 words and requiring 65 answers was used. Testing time was 20 minutes. Both the "exact" and "acceptable word" scoring procedures were used, the latter being reported here. Scores could range from 0 to 65.

Scores were standardized (Mean = 50.00, S.D. = 10.00) using as a reference group the francophone students from the Rivière-du-Loup area in the province of Québec. Approximately 99% of the population in this area has French as their mother tongue in a province where more than 80% of the population is French. A score of 50.00 is therefore equal to the average score obtained by the high vitality French reference group.

4. English cognitive-academic linguistic proficiency. A cloze-test of approximately 330 words and requiring 66 answers was used. Testing time was 20 minutes. Using the "acceptable word" scoring procedure, scores could range from 0 to 66. Scores were standardized (Mean = 50.00, S.D. = 10.00) using as a reference group the students from the regular English program in the Moncton (New Brunswick) area. These students resided in towns and villages where more than 80% of the population has English as their mother tongue. A score of 50.00 is therefore equal to the average score obtained by the high vitality English reference group.

5. Beliefs in ethnolinguistic vitality. This questionnaire related eight different categories of beliefs to twelve different indices of ethnolinguistic vitality. A factor analytic study of the eight beliefs concerning French vitality and of the eight beliefs concerning English vitality yielded the following factor scores: (1) exo-centric beliefs toward French ethnolinguistic vitality, (2) ego-centric beliefs toward French ethnolinguistic vitality, (3) exo-centric beliefs toward English ethnolinguistic vitality, (4) ego-centric beliefs toward English ethnolinguistic vitality. Exo-centric beliefs refer to the perception by the individual of situations exterior to him/herself and ego-centric beliefs are more closely related to feelings of belonging, personal values, expectancy of fulfilling one's needs in the language and the personal goals of the individual. Only the ego-centric beliefs are used in the present analyses since these beliefs are seen as reflecting the individual's desire to integrate the linguistic community. Scores are reported on a 9-point scale where 1 refers to no desire to integrate the community and 9 a very strong desire.

6. Language behavior in French. Subjects rated the frequency of use of French (1 = never, 9 = always) in 15 different contact situations.

7. Language behavior in English. Subjects rated the frequency of use of English in the same contact situations as in the questionnaire on French language behavior.

8. Francophone identity. Subjects rated their francophone identity on a 1 to 9 scale from a variety of perspectives (culture, language, ancestors, ethnic origins, etc...). The mean score is reported. A score of 1 equals a non-francophone identity and a score of 9 equals a completely francophone identity.

9. Anglophone identity. Subjects rated their anglophone identity on the same scales as for francophone identity. Scores could range from 1 to 9, the latter indicating a completely anglophone identity.

10. Non-verbal intellectual aptitude. The abstract reasoning scale of the Differential Aptitude Tests (Bennett, Seashore and Wesman, 1974) was administered. Testing time was 25 minutes. The maximum score on this scale is 50. Scores were standardized (Mean = 50.00, S.D. = 10.00) using as a reference group the francophone students from the Rivière-du-Loup area in the province of Québec.

11. Parental occupation. Data on the father's and mother's occupation were collected. Occupation was categorized on a 1 to 6 scale using the indices developed by Blishen and McRoberts (1976). Scores were standardized (Mean = 50.00, S.D. = 10.00) using as a reference group the francophone students from the Rivière-du-Loup area in the province of Québec.

12. Parental education. Subjects reported their parents' level of education on a 7-point scale where a score of 1 refers to schooling at the elementary level and a score of 7 to having completed graduate studies. Scores were standardized (Mean = 50.00, S.D. = 10.00) using as a reference group the francophone students from the Rivière-du-Loup area in the province of Québec.

13. Demographic vitality. Using the census data of 1986, the percentage of persons reporting French as mother tongue (first language spoken and still understood) is used as an index of demographic vitality. Subjects' scores are the percentages reported by Statistics Canada for their city, town or village. This procedure offers more variability and accuracy than provincial or regional rates.

14. Individual network of linguistic contacts (INLC). As discussed in the theory section of this paper, the INLC consists of three types of contact. Interpersonal contacts were measured by a questionnaire which analyzed different structural dimensions of interpersonal contacts with francophones and anglophones. For the present analyses, only contacts with francophones and the dimension concerning the proportion of francophones in the interpersonal network are considered. Responses were given on a 9-point scale (1 = none were francophones, 5 = half were francophones, 9 = all were francophones). Contacts with the French and English media were measured by a separate questionnaire in which subjects rated their overall access to twelve different media sources since early childhood. Only contacts with the French media are considered in the present analyses. Responses were given on a 9-point scale (1 = no contacts in French, 5 = contacts were half the time in French, 9 = contacts were always in French). Educational support was measured by seven questions, each one being answered for each school year from kindergarten to grade 12. Subjects responded to questions on a 1 to 7 scale regarding degree of instruction in French and English and on a 1 to 5

scale for the questions referring to dimensions of the linguistic ambiance of the school. Only the scale referring to the degree of instruction given in French and in English is used in the present analyses. A score of 1 indicates that instruction was given totally in English and a score of 7 that it was given totally in French.

Design and analyses

The design for the francophone students called for 3 X 3 analyses of covariance. The two independent variables were the strength of the L1 network (low, medium, high) and the degree of L1 schooling (low, medium, high). Covariates were parental education, parental occupation and non-verbal intellectual aptitude. One drawback of this design was that of an unequal number of subjects in each cell (Ns ranged from a low of 4 to a high of 323).

The results of the anglophone subjects were analyzed by a oneway analysis of covariance, the independent variable being degree of L1 schooling (low, medium, high). Covariates were the same as for the francophone students. Number of subjects per cell range from 71 to 123.

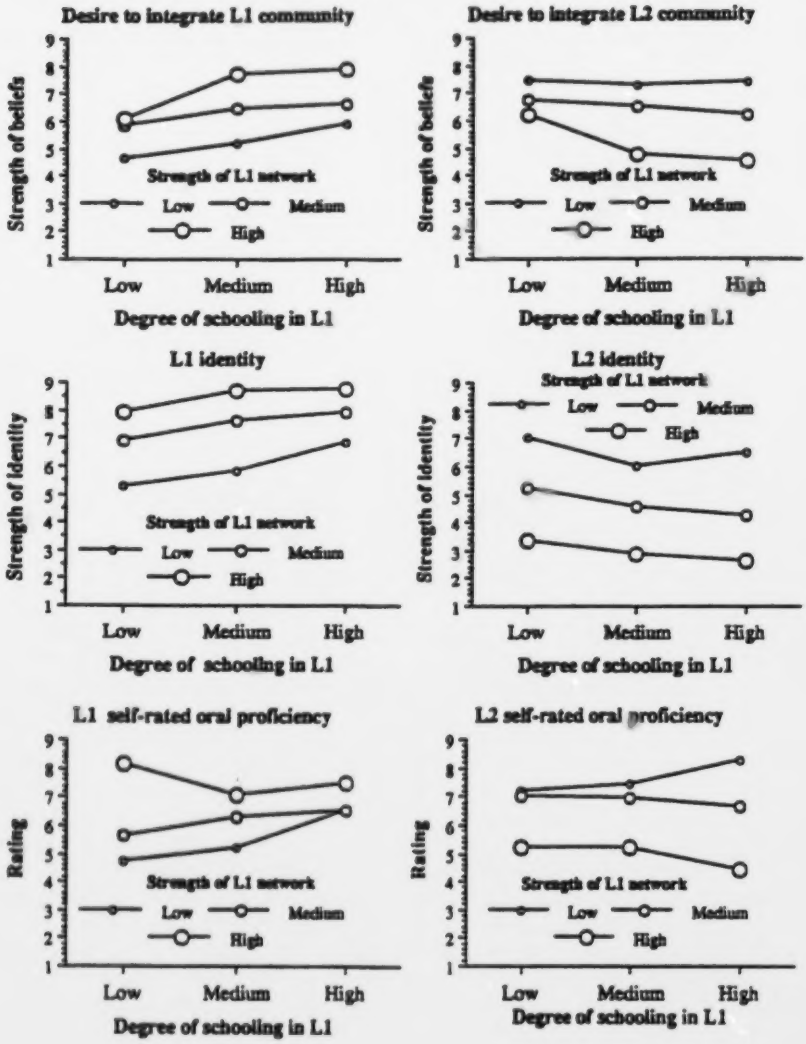
Due to space limitations, means and standard deviations for the eight dependent variables and three covariates of the nine francophone sub-groups and the three anglophone sub-groups are not presented but are available upon request from the authors. For the same reasons, statistical details of the F tests of the analyses of covariance are not reported. Only P values will be indicated. The results are presented in graphic form such that trends in the data are more readily observable. All results show means adjusted for the effects of the covariates.

Results

Figure 3 shows the scores of the francophone students in L1 and L2 for desire to integrate the linguistic community, ethnolinguistic identity and self-rated oral proficiency. All of these scores are reported on a 1 to 9 scale (see instruments). For the desire to integrate the L1 community, the analysis of variance found strong effects for the L1 network ($p = .000$) and for L1 schooling ($p = .000$).

A high level of schooling in L1 and a strong L1 network are both independently related to a higher desire to integrate one's community. The L1 network by degree of schooling interaction was not significant ($p = .082$) but there was a tendency for the high L1 network group that received low L1 schooling to have less desire to integrate the L1 community than expected. This could be an artifact of the small sample size in this group ($N = 4$). The covariates account for a small but significant part of the explained variance ($p = .030$).

Figure 3: The effects of degree of schooling in L1 and of the strength of the L1 network on the desire to integrate the community, ethnolinguistic identity and self-rated oral proficiency of the francophone groups in L1 and L2.



The desire to integrate the L2 community was strongly related to the strength of the L1 network ($p = .000$). The greater the strength of the L1 network the weaker the desire to integrate the L2 community. The effect of L1 schooling is also statistically significant ($p = .007$), but the effect is less strong than that of the L1 network, and as can be seen in Figure 3, the effect is only apparent for the higher vitality groups. The low vitality or low L1 network groups do not differ considerably in their desire to integrate L2 community irrespective of their degree of L1 schooling. For the latter groups, the desire to integrate the L2 community is stronger than the desire to integrate L1 community even for the students that were schooled totally in French (L1) from grade 1 to grade 12 (except for English as a second language). Therefore, for the low vitality francophone groups a high level of L1 schooling increases the desire to integrate the francophone community but it does not seem to decrease the desire to integrate the dominant anglophone community. The effect of the covariates is small but statistically significant ($p = .015$).

Both the strength of the L1 network ($p = .000$) and the degree of L1 schooling ($p = .000$) had strong effects on the strength of L1 identity of the francophone students. There is also a non-significant trend ($p = .120$) for the effect of L1 schooling to be stronger for the low L1 network groups than for the students that have stronger L1 networks. The L1 network also has a very strong negative effect on L2 identity ($p = .000$) but the effect of L1 schooling is not statistically significant ($p = .195$). The effects of the covariates is non-significant for both L1 and L2 identity scores. Again a high level of L1 schooling for the low vitality francophone students increased their francophone identity but did not decrease significantly their identification with the anglophone group. These students' identification with the anglophone group is as high as that with the francophone group. It is only in the medium and high L1 network groups that L1 identity is significantly greater than L2 identity.

The bottom of Figure 3 shows the L1 and L2 self-rated oral proficiency scores of the francophone students. Analyses of covariance show a strong positive effect of both L1 network ($p = .000$) and L1 schooling ($p = .000$) on L1 oral proficiency. The effect of the covariates is as strong as that of schooling ($p = .000$). A significant interaction ($p = .024$) indicates that the effect is stronger for the low vitality groups. For the high vitality groups L1 oral proficiency remains high irrespective of the degree of L1 schooling. The seemingly higher L1 proficiency scores for the high vitality francophone students that have low L1 schooling may be an artifact of low sample size ($N = 4$). The analysis of covariance shows that for L2 self-rated oral proficiency, only the L1 network effect is statistically significant ($p = .000$). The L1 network is negatively related to self-rated L2 oral proficiency. A high level of L1 schooling did not decrease the degree of self-rated oral proficiency in L2 ($p = .939$). For the low vitality francophone groups, there is even a trend in the opposite direction, where students who were schooled predominantly in French rated their English oral proficiency higher than the students who received minimal schooling in French. Although the scores reported are adjusted for the effects of the covariates, this trend may be due to uncontrolled effects of the students socio-economic status. On these scores, a relatively large part of the variance is explained by the covariates ($p = .000$). All low L1 network francophone students rated their English oral skills to be considerably stronger

than their French oral skills. The present results therefore reinforce the view that the strength of the L1 network increases L1 skills and decreases L2 skills, but that the degree of L1 schooling reinforces L1 oral skills without decreasing L2 skills, especially in low vitality contexts. In higher vitality contexts, less schooling in L1 (or inversely more schooling in L2) should be related to increased L2 proficiency. This effect is slightly apparent in Figure 3 but the interaction does not reach statistical significance (p = .182).

Figure 4: The effects of degree of schooling in L1 and of the strength of the L1 network on the cognitive-academic proficiency of the francophone groups in L1 and L2.

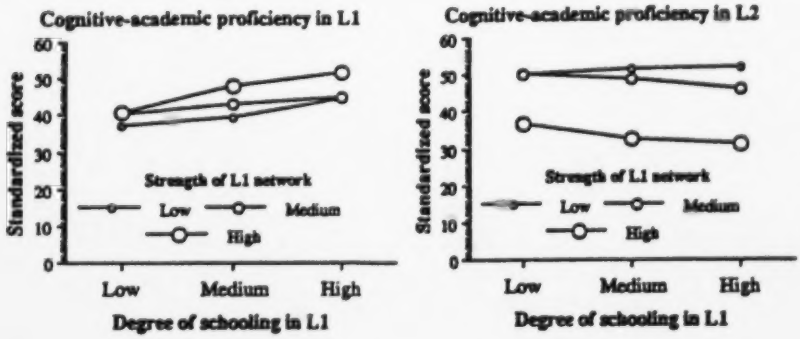
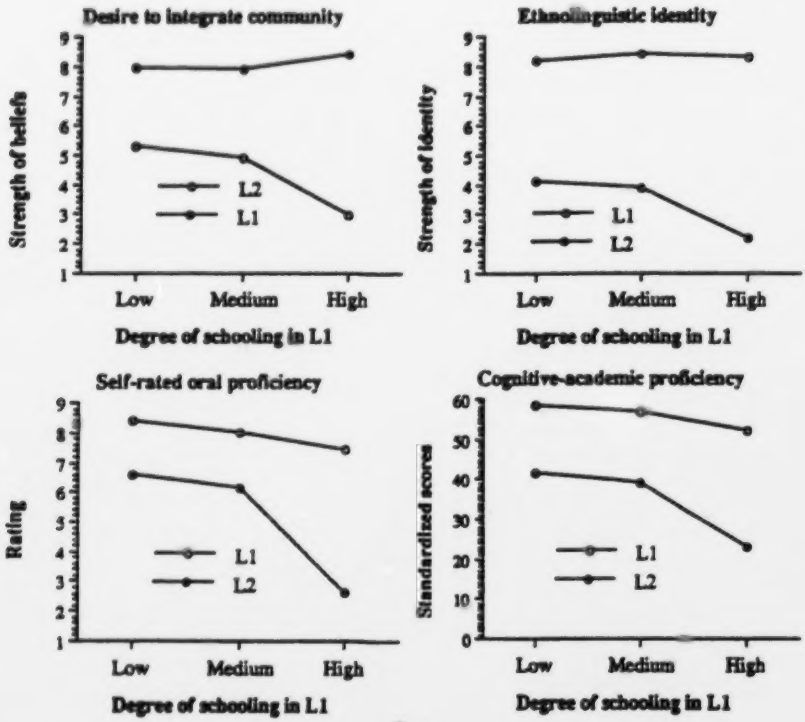


Figure 4 shows the scores of the francophone students on both L1 and L2 cognitive-academic proficiencies which were measured by the cloze technique. The largest effect is that of the covariates for both L1 and L2 proficiency (p = .000 in both cases). A large part of the explained variance is therefore due to SES and non-verbal intellectual aptitude. For L1 proficiency, both the L1 network effect (p = .002) and the L1 schooling effect (p = .000) are highly significant, the latter being stronger than the former. Both effects are positively related to L1 proficiency. On L2 cognitive-academic proficiency, aside from the covariates effect, only the L1 network effect is statistically significant (p = .000). The latter is negatively related to L2 proficiency. Degree of L1 schooling is positively related to L1 proficiency for all vitality groups. For low vitality or low L1 network groups, complete schooling in French (except for English as a second language) increases cognitive-academic proficiency in French by about

one standard deviation, but the group is still approximately .5 standard deviation below the unilingual norm from Québec (see Instruments). In L2 (English), however, all three groups which have a low L1 network (and hence a strong L2 network) are within the anglophone norm based upon the anglophone students of Moncton, New Brunswick (see Instruments). Being schooled completely in French did not decrease their cognitive-academic proficiency in English. In fact, the effect of the ethnolinguistic vitality of the community, which in this case favors a high L2 network, is so strong that even when the students were schooled completely in French, their performance in English was closer to the anglophone norm than their performance in French was to the francophone norm.

Figure 5 shows the effects of the degree of schooling in L1 for the anglophone students. As can be observed, being schooled less in English and more in French for this high vitality group increases the desire to integrate the L2 (francophone)

Figure 5: The effects of degree of schooling in L1 on the desire to integrate the community, ethnolinguistic identity, self-related oral proficiency, and cognitive-academic proficiency of the anglophone groups in L1 and L2.



community (p = .000) and decreases slightly the desire to integrate the L1 (anglophone) community. The effect of L1 schooling on the latter is highly significant (p = .000) but the absolute decrease in the desire to integrate the L1 community is minimal. The latter remains much stronger than the desire to integrate the L2 community even when the students had more than half of their schooling in L2. The effects of the covariates were non-significant.

The effects of the degree of L1 schooling on L1 and L2 identity of the anglophone students were very similar to those on the desire to integrate the L1 and L2 communities (see Figure 5), with the exception that the effect of L1 schooling on L1 identity is non-significant (p = .575). The effect of this variable on L2 identity, however, is highly significant (p = .000). For the anglophone students, being schooled in French increases their francophone identity, but the effect is additive since there is no decrease in the strength of their anglophone identity.

Degree of schooling in French was very highly related to the acquisition of both French oral skills (p = .000) and French cognitive-academic proficiency (p = .000). The latter skills, however, are still considerably below the francophone norm used in this study (see instruments). French immersion for this high vitality anglophone group did not decrease their proficiency in English. The between group main effect was highly significant (p = .000 for both self-rated L1 oral proficiency and L1 cognitive-academic proficiency) but in favor of the immersion groups. This effect is probably best explained by the fact that French immersion students in Canada tend to be a highly select group (Genesee, 1987). The means shown in Figure 5 were adjusted for the effects of the covariates (parental education, parental occupation, and non-verbal intellectual aptitude). However, uncontrolled factors may still be operative. The covariates' effects were non-significant for L1 self-rated oral proficiency (p = .186), significant for L2 self-rated oral proficiency (p = .026) and highly significant for both L1 and L2 cognitive-academic proficiency (p = .000 in both cases).

Discussion and Conclusion

The three hypotheses derived from the theoretical model were strongly supported by the results of the study. As predicted by hypothesis 1, the strength of the L1 network of the francophone students was significantly positively related to all L1 scores (French) and significantly negatively related to all L2 scores (English). The effect of the L1 network (which is related to the vitality of the linguistic community) was stronger than the effect of the degree of L1 schooling on the following variables: desire to integrate L1 and L2 communities, L1 and L2 identities, L1 and L2 self-rated oral proficiencies and L2 cognitive-academic proficiency. The effect of L1 schooling was stronger than that of the L1 network only for L1 cognitive-academic proficiency, which is consonant with the hypothesis that this aspect of linguistic competence is more highly related to literacy activities and context-reduced, cognitively demanding linguistic contacts (see theoretical model; Cummins, 1979, 1981, 1984; Resnick, 1987).

The second hypothesis was that a low level of L1 schooling for low vitality (or low L1 network) francophone students would be related to a subtractive type of bilingualism. Conversely, it was expected that a high level of L1 schooling

for these students would foster an additive type of bilingualism. As predicted, a low level of L1 schooling was related to a lower desire to integrate the francophone community, a lower francophone identity, a lower self-rated oral proficiency in French and lower scores on a French cognitive-academic proficiency test. Also as predicted, competency scores in English were not significantly higher among the francophone students schooled predominantly in English than among the francophone students schooled predominantly in French. The results support the counterbalance model shown in Figure 2; for low vitality groups the best results in terms of an additive type of bilingualism are obtained by maximum teaching in L1 (see also Landry & Allard, 1991 b; Landry et al. 1991 ; Landry & Magord, in press).

Although it was expected that a high level of schooling in L1 may have reduced the desire to integrate the L2 community and the strength of L2 identity, the results were not clearly supportive of this trend. The negative effect of L1 schooling on the desire to integrate the L2 community was statistically significant but only apparent for the higher vitality groups. For the low vitality francophone groups, there was no apparent reduction in the desire to integrate the L2 community due to the degree of L1 schooling (see Figure 3). For each of these groups, the latter remained considerably higher than the desire to integrate the L1 community. The desire to integrate both communities, however, was stronger among the students who had the most schooling in French. The effect of L1 schooling on L2 identity was not statistically significant. In low vitality contexts, therefore, a high level of L1 schooling seems to increase the desire to remain an active member of one's community (an additive effect), but without decreasing the need or the desire to integrate the dominant community. Although not an easy task, the chances of developing an additive type of bilingualism are clearly greater in low vitality contexts when schooling is predominantly in L1.

The third hypothesis was strongly supported. As predicted, an increase of schooling in L2 (or inversely a decrease in L1 schooling) for the high vitality anglophone groups was significantly and positively related to an increase in all L2 scores, especially the competency scores. Also as predicted, no decrease was observed on L1 scores in relation to the degree of schooling in L2, except for the desire to integrate the L1 community. Desire to integrate the L1 community was still very high for anglophone students schooled mostly in L2 but was slightly and significantly lower than that of the students schooled mostly in L1. What these scores may mean is that students who received a considerable portion of their schooling via a second language (the language of the weaker community in terms of EV) may not want to integrate exclusively their own community. As the results in Figure 5 show, they also want to be part of the minority community, at least to a moderate extent. These results also support the counterbalance model depicted in Figure 2; for high vitality groups very strong and continuous linguistic contacts with L2 within the school milieu favor an additive type of bilingualism.

As already mentioned, the fact that French immersion anglophone students not only did not decrease their competency in English but actually had higher scores in English than non-immersion students may be due to their belonging to a highly select group. Analysis of covariance with SES variables and intellectual aptitude as covariates may not adequately account for certain intangible effects (Tabachnick & Fiddell, 1989) and this statistical technique is not as effective a

control procedure as is random sampling. Nonetheless, there may be another plausible explanation. It has been hypothesized (e.g. Swain & Lapkin, 1991) that the French immersion experience, in the long run, may actually have positive effects on certain English proficiency skills. At this point, however, we can only speculate. Indeed, both an L1 enhancement effect and some uncontrolled home environment effects may be at play, simultaneously.

What are the implications of the present study for the bilingual education issues prevalent in the United States and discussed in the introduction to this paper? First, the results strongly support the view that "socially naive" accounts of bilingual education are clearly not taking sufficiently into consideration the very strong influence that linguistic network variables (over and above that of schooling) have on a large number of L1 and L2 outcomes. On all variables except that of cognitive-academic proficiency in L1, the linguistic network variables had stronger effects than schooling. Bilingual education programs should therefore be adapted to the relative ethnolinguistic vitalities of the language communities they are designed to serve.

Secondly, the results are in agreement with the view that additive bilingualism for minority group children is best promoted by minority language maintenance programs. It is highly unlikely that teaching predominantly in society's dominant language can produce additive effects on bilingual development for either low vitality or high vitality groups (Skutnabb-Kangas & Cummins, 1988). Thirdly, the results also support Cummins' (1979, 1981, 1984) transfer or interdependency hypothesis. Low vitality group children schooled predominantly in L1 had L2 competency scores equal to those schooled predominantly in L2. For these low vitality group children, the L2 norm seems even more accessible than the L1 norm of a high vitality L1 reference group. This again shows the strong effect of the social milieu that cannot be completely compensated by the school milieu. The fact that the L2 norm could be reached by the minority group children seems contrary to the results found in the United States (e.g. Ruiz, 1988; Cummins, 1984), but it should be noted that the students tested in this study were equal to or higher in SES status than those of the normative group. This is not the case in the United States and, also, none of the students tested in this study were "submersed" into L2 programs to the same extent as many immigrant children in the United States. We are not saying that this type of submersion does not exist in Canada, but only that submersed children were not tested in the present study. Most of the francophone students tested had at least close to half of their schooling in French and all low vitality francophone groups had a strong network of contacts with English in the social milieu.

Finally, the results of this study support the view that L1 schooling for low vitality groups seems to be conducive to *integration*, whereas the opposite is conducive to *assimilation* or *deculturation*. According to Berry (1984) integration implies the "maintenance of the cultural integrity of the group, as well as the movement by the group to become an integral part of a larger societal framework" (p.12). At least in the present case, a high degree of L1 schooling for the minority group seems to foster this type of integration. Assimilation is "relinquishing one's cultural identity and moving into the larger society" (p. 12) and deculturation is defined by feelings of alienation and marginality, a situation often "accompanied by a good deal of collective and individual confusion and

"relinquishing one's cultural identity and moving into the larger society" (p. 12) and deculturation is defined by feelings of alienation and marginality, a situation often "accompanied by a good deal of collective and individual confusion and anxiety" (p. 12). One or the other of the latter consequences seems to be probable when L1 schooling is not provided to low vitality groups. Finally, a high level of schooling in L2 for the dominant or high vitality group seems to favor more positive attitudes toward the low vitality group and a greater desire to integrate that community, without any concomitant desire to abandon L1 culture.

The results of this study have strong implications for further research in bilingual education. There is a need for studies that will take into consideration simultaneously the effects of different models of bilingual education and those related to the vitality of the ethnolinguistic community, especially the strength of the ethnolinguistic contacts experienced by the students in the family and the socio-institutional milieus. There is also a need to adapt bilingual programs to these networks of linguistic contacts so that additive bilingualism as globally defined herein is fostered. Indeed, the results of this study seem to imply that the effects of bilingual education cannot be understood without considering the strong influence of the children's sociolinguistic environment.

Footnote

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REFERENCES

Allard, R., & Landry, R. (1986). Subjective ethnolinguistic vitality viewed as a belief system. Journal of Multilingual and Multicultural Development, 7, 1-12.

Allard, R., & Landry, R. (1987). Croyances envers la vitalité ethnolinguistique et comportement langagier des francophones en milieu minoritaire. In R. Théberge, & J. Lafontant (Ed.), Demain, la francophonie en milieu minoritaire? Winnipeg: Centre de recherche du Collège de Saint-Boniface.

Allard, R., & Landry, R. (1991). Subjective ethnolinguistic vitality: a comparison of two measures. Paper presented at the Fourth International Conference on Language and Social Psychology, Santa Barbara, California.

Allard, R., & Landry, R. (1992). Ethnolinguistic vitality beliefs and language maintenance and loss. In W. Fase, K. Jaespaert, & S. Kroon (Ed.), Maintenance and loss and minority languages. Amsterdam: Benjamins.

Allardt, E. (1984). What constitutes a language minority? Journal of Multilingual and Multicultural Development, 5, 193-205.

Andersson, T., & Boyer, M. (1970). Bilingual schooling in the United States. Washington, D.C.: U.S. Government Printing Office.

Baker, C. (1988). Key issues in bilingualism and bilingual education. Clevedon, England: Multilingual Matters.

Baker, K. (1987). Comment on Willig's "A meta-analysis of selected studies in the effectiveness of bilingual education". Review of Educational Research, 57, 351-362.

Baker, K., & de Kanter, A. (1983). Effectiveness of bilingual education. In K. Baker, & A. d. Kanter (Ed.), Bilingual Education: A reappraisal of federal policy (pp. 33-86). Lexington, MA: Lexington Books.

Bennett, G. K., Seashore, H.G. & Wesman, A. G. (1974). Differential aptitude tests, forms S and T (Fifth edition ed.). New York: Psychological Corporation.

Berry, J. (1984). Cultural relations in plural societies: alternatives to segregation and their sociopsychological implications. In N. Miller, & M. Brewer (Ed.), Groups in contact. New York: Academic Press.

Blishen, B. R., & McRoberts, H. A. (1976). A revised socioeconomic index for occupations in Canada. Canadian Review of Sociology and Anthropology, 13, 71-79.

Bourdieu, P. (1980). La distinction. Paris: Éditions de Minuit.

Bourhis, R. Y. (1979). Language in ethnic interaction: A social psychological approach. In H. Giles, & B. Saint-Jacques (Ed.), Language and ethnic relations (pp. 117-142). Oxford: Pergamon.

Bourhis, R. Y. (1985). The sequential nature of language choices in cross-cultural communication. In J. R. L. Street, & J. N. Cappella (Ed.), Sequence and pattern in communicative behaviour (pp. 120-141). London: Arnold.

Bourhis, R.Y., Giles, H., & Rosenthal, D. (1981). Notes on the construction of a subjective vitality questionnaire for ethnolinguistic groups. Journal of Multilingual and Multicultural Development, 2, 145-166.

Breton, R. (1964). Institutional completeness of ethnic communities and the personal relations of immigrants. American Journal of Sociology, 70, 193-205.

Carroll, J. B. (1973). Implications of aptitude test research and psycholinguistic theory for foreign language teaching. International Journal of Psycholinguistics, 2, 5-14.

Cummins, J. (1978). Educational implications of mother tongue maintenance in minority-language groups. Canadian Modern Language Review, 34, 395-416.

Cummins, J. (1979). Linguistic interdependence and the educational development of bilingual children. Review of Educational Research, 49, 222-251.

Cummins, J. (1981). The role of primary language development in promoting educational success for language minority students. In California State Department of Education (Ed.), Schooling and language minority students: A theoretical framework. Los Angeles: Author.

Cummins, J. (1984). Bilingual and special education: Issues in assessment and pedagogy . Clevedon, England: Multilingual Matters.

Cummins, J. (1986). Empowering minority students: A framework for intervention. Harvard Educational Review, 56, 18-36.

Cummins, J., & Swain, M. (1986). Bilingualism in education. London: Longman.

De Rosnay, J. (1975). Le macroscope : vers une vision globale. Paris: Éditions du Seuil.

de Vries, J. (1984). Factors affecting the survival of minorities: A preliminary comparative analysis of data for Western Europe. Journal of Multilingual and Multicultural Development, 5, 207-216.

Edwards, J. (1989). Social purposes of bilingual education: U.S. English, the ELA and other matters. Paper presented at Meridian House International / U.S. English Conference on Public Policy Issues in Bilingual Education, Washington, D.C.

Gardner, R. C. (1985). Social psychology and second language learning: The role of attitudes and motivation. Baltimore, MD: Edward Arnold.

Gardner, R. C., & Clément, R. (1990). Social psychological perspectives on second language acquisition. In H. Giles, & W. P. Robinson (Ed.), Handbook of language and social psychology. New York: Wiley.

Genesee, F. (1976). The role of intelligence in second language learning. Language Learning, 26, 267-280.

Genesee, F. (1978). Individual differences in second language learning. Canadian Modern Language Review, 34, 490-504.

Genesee, F. (1983). Bilingual education of majority language children: The immersion experiments in review. Applied Psycholinguistics, 4, 1-46.

Genesee, F. (1985). Second language learning through immersion. Review of Educational Research, 55, 541-561.

Genesee, F. (1987). Learning through two languages . Cambridge: Newbury House.

Genesee, F. (1991). Second language learning in school settings: lessons from immersion. In A. G. Reynolds (Ed.), Bilingualism, multiculturalism and second language learning: The McGill conference honour of Wallace E. Lambert Hillsdale, N.J.: Lawrence Erlbaum.

Giles, H., Bourhis, R. Y., & Taylor, D. M. (1977). Toward a theory of language in ethnic group relations. New York: Academic Press,

Giles, H., Leets, L., & Coupland, N. (1990). Minority language group status: A theoretical conspexus. Journal of Multilingual and Multicultural Development, 11, 37-55.

Grosjean, F. (1982). Life with two languages: an introduction to bilingualism. Cambridge: Harvard University Press.

Hakuta, K. (1986). Mirror of language: The debate on bilingualism. New York: Basic Books.

Hamers, J., & Blanc, M. (1983). Bilingualité et bilinguisme. Bruxelles: Mardaga.

Hamers, J., & Blanc, M. (1989). Bilinguality and bilingualism. Cambridge: Cambridge University Press.

Krashen, S. D. (1981). Bilingual education and second language acquisition. In California State Department of Education (Ed.), Schooling and language minority students: A theoretical framework. Los Angeles: Author.

Lambert, W. E. (1975). Culture and language as factors in learning and education. In A. Wolfgang (Ed.), Education of immigrant students. Toronto: Ontario Institute for Studies in Education.

Lambert, W. E., & Tucker, G. R. (1972). Bilingual education of children: The St-Lambert experiment. Rowley: Newbury House.

Landry, R. (1982). Le bilinguisme additif chez les francophones minoritaires du Canada. Revue des sciences de l'éducation, 8, 223-244.

Landry, R. (1987). Additive bilingualism, schooling and special education: A minority group perspective. Canadian Journal for Exceptional Children, 3(4), 109-114.

Landry, R., & Allard, R. (1987). Étude du développement bilingue chez les Acadiens des provinces Maritimes. In R. Théberge, & J. Lafontant (Ed.), Demain, la francophonie en milieu minoritaire Winnipeg: Centre de recherches du Collège de Saint-Boniface.

Landry, R., & Allard, R. (1990). Contact des langues et développement bilingue : Un modèle macroscopique. Revue canadienne des langues vivantes/Canadian Modern Language Review, (46), 527-553.

Landry, R., & Allard, R. (1991 a). Ethnolinguistic vitality and subtractive identity. Paper presented at the Annual Conference of the International Communication Association, Chicago.

Landry, R., & Allard, R. (1991 b). Can schools promote additive bilingualism in minority group children? In L. Malave, & G. Duquette (Ed.), Language, culture and cognition: A collection of studies in first and second language acquisition for educators in Canada and the United States. Clevedon, England: Multilingual Matters.

Landry, R., & Allard, R. (1992). Ethnolinguistic vitality and the bilingual development of minority and majority group students. In W. Fase, K. Jaespaert, & S. Kroon (Ed.), Maintenance and loss of minority languages Amsterdam: Benjamins.

Landry, R., & Magord, A. (in press). Vitalité de la langue française à Terre-Neuve et au Labrador : les rôles de la communauté et de l'école . Education et Francophonie.

Landry, R., Allard, R., & Théberge, R. (1991). School and family French ambiance and the bilingual development of francophone Western Canadians. Canadian Modern Language Review, 47, 878-915.

McLaughlin, B. (1984). Early bilingualism: methodological and theoretical issues. In M. Paradis, & Y. Lebrun (Ed.), Early bilingualism and child development Lisse: Swets & Zeitlinger, B.V.

McNab, G. (1979). Cognition and bilingualism: A reanalysis of studies. Linguistics, 17, 231-255.

Paulston, C. B. (1988). Bilingualism and bilingual education: an introduction. In C. B. Paulston (Ed.), International handbook of bilingualism and bilingual education. Westport, Conn.: Greenwood Press.

Prujiner, A. (1987). Éléments de réflexion sur l'analyse des aspects sociétaux des contacts des langues. In M. Blanc, & J. Hamers (Ed.), Problèmes théoriques et méthodologiques dans l'étude des langues/dialectes en contact aux niveaux macrologique et micrologique Québec: Centre international de recherches sur le bilinguisme.

Prujiner, A., Deshaies, D., Hamers, J. F., Blanc, M., Clément, R., & Landry, R. (1984). Variation du comportement langagier lorsque deux langues sont en contact. Québec: Centre international de recherches sur le bilinguisme, 189.

Ramírez, D. (1991). Study finds native language instruction is a plus. NABE News, 14(5), 1 and 20-22.

Resnick, L. B. (1987). Learning in school and out. Educational Researcher, 16(9), 13-20.

Reynolds, A. G. (1991a). Bilingualism, multiculturalism and second language learning: The McGill conference in honour of Wallace E. Lambert . Hillsdale, N.J.: Lawrence Erlbaum.

Reynolds, A. G. (1991b). The cognitive consequences of bilingualism. In A. G. Reynolds (Ed.), Bilingualism, multiculturalism, and second language learning. Hillsdale, NJ: Lawrence Erlbaum.

Ruiz, R. (1988). Bilingualism and bilingual education in the United States. In C. B. Paulston (Ed.), International handbook of bilingualism and bilingual education. Westport, Conn: Greenwood Press.

Secada, W. G. (1987). This is 1987, not 1980: A comment on a comment. Review of Educational Research, 57, 377-384.

Skutnabb-Kangas, T. (1983). Bilingualism or not: The education of minorities. Clevedon, England: Multilingual Matters.

Skutnabb-Kangas, T. (1990). Legitimating or delegitimating new forms of racism - The role of researchers. Journal of Multilingual and Multicultural Development, 11, 77-100.

Skutnabb-Kangas, T., & Cummins, J. (1988). Minority education: From shame to struggle. Clevedon, England: Multilingual Matters.

Spener, D. (1988). Transition bilingual education and the socialization of immigrants. Harvard Educational Review, 58, 133-153.

Swain, M. (1985). Communicative competence: some roles of comprehensible input and comprehensible output in its development. In S. Gass, & C. Madden (Ed.), Input in second language acquisition. Rowley, MA: Newbury House.

Swain, M., & Lapkin, S. (1982). Evaluating bilingual education: A canadian case study . Avon, England: Multilingual Matters.

Swain, M., & Lapkin, S. (1991). Additive bilingualism and French immersion education: The roles of language proficiency and literacy. In A. G. Reynolds (Ed.), Bilingualism, multiculturalism and second language learning: The McGill conference in honour of Wallace E. Lambert. Hillsdale, NJ: Lawrence Erlbaum.

Tabachnick, B. G., & Fidell, L. S. (1989). Using multivariate statistics . New York: Harper & Row.

Taylor, D. M. (1991). The social psychology of racial and cultural diversity: Issues of assimilation and multiculturalism. In A. G. Reynolds (Ed.), Bilingualism, multiculturalism, and second language learning. Hillsdale, NJ: Lawrence Erlbaum.

Willig, A. C. (1985). A meta-analysis of selected studies on the effectiveness of bilingual education. Review of Educational Research, 55, 269-317.

Willig, A. C. (1987). Examining bilingual education research through meta-analysis and narrative review: a response to Baker. Review of Educational Research, 57, 363-376.